42. (New) The system of Claim 40 wherein each of said plurality of increments rotates the polarization of the signal by a substantially equal amount.

43. (New) The system of Claim 40 wherein said first polarization is substantially identical to said second polarization.

44. (New) The system of Claim 43 wherein said plurality of increments is two and wherein the rotation of the polarization of the signal for each of said two increments is substantially equal in magnitude and opposite in rotational direction.

45. (New) The system of Claim 40 wherein said first polarization is substantially orthogonal to said second polarization.

46. (New) The system of Claim 45 wherein said plurality of increments is two and wherein the rotation of the polarization of the signal for each of said two increments is substantially 45°.

47. (New) The system of Claim 40 wherein the distance between rotations along the path of propagation is approximately one quarter of the wavelength of said signal

48. (New) The system of Claim 40 wherein said signal is a radio frequency signal in the range of 2 to 110 GHz.

49. (New) The system of Claim 40 wherein said signal is a radio frequency signal is in the microwave frequency range.

50. (New) The system of Claim 40 wherein said first path is associated with a radio communication apparatus and said second path is associated with an antenna.

51. (New) The system of Claim 50 wherein said antenna is a polarized antenna and the polarization of said polarized antenna matches the polarization of the second path.

52. (New) The system of Claim 40 wherein said first path is associated with an antenna and said second path is associated with a radio communication apparatus.

53. (New) The system of Claim 52 wherein said antenna is a polarized antenna and the polarization of said polarized antenna is the same as the polarization of the first path.

54. (New) In a system for coupling a first signal path to a second signal path wherein a signal propagating has a first polarization in said first path and a second polarization in said second path, the improvement wherein the polarization of the signal is rotated in a plurality of increments.

55. (New) The system of Claim 54 wherein said plurality of increments is two.

56. (New) The system of Claim 54 wherein each of said plurality of increments rotates the polarization of the signal by a substantially equal amount.

57. (New) In a system having a first wave guide configured for a first polarization, a second wave guide configured for a second polarization, and a coupler configured for a third polarization, the improvement wherein said coupler is configured to effect substantially equal changes in the polarization of a signal propagating through said

system at the junction of said first wave guide and said coupler and at the junction of said coupler and said second wave guide.

58. (New) The system of Claim 57 wherein said first polarization is different from said second polarization; and

wherein said changes are additive.

59. (New) The system of Claim 57 wherein said first polarization is the same as said second polarization; and

wherein said changes oppose each other.

60. (New) A universal coupler for coupling a signal through a first wave guide configured for a first polarization and a second wave guide configured for a second polarization comprising a plate having a thickness along the wave guide substantially equal to one quarter wavelength of the signal and an aperture configured for a polarization different from both said first and second polarizations.

61. (New) The coupler of Claim 60 wherein said first and second polarizations are the same.

62. (New) The coupler of Claim 60 wherein said first and second polarizations are different; and

wherein the polarization of said coupler is substantially at the midpoint of said difference in polarization.

63. (New) A method of coupling a signal propagating from a first wave guide configured for a first polarization to a second wave guide configured for a second polarization through a coupler configured for a third polarization comprising the steps of:

(a) rotating the polarization of the signal at the end of the first wave guide in a direction determined by the relative polarization of the first wave guide and the coupler; and

(b) rotating the polarization of the signal at the beginning of the first wave guide in a direction determined by the relative polarization of the coupler and the first wave guide.

64. (New) A method of coupling a signal propagating from a first wave guide configured for a first polarization to a second wave guide configured for a second polarization through a coupler configured for a third polarization comprising the steps of:

(a) rotating the polarization of the signal at the end of the first wave guide in a first direction; and

(b) rotating the polarization of the signal at the beginning of the first wave guide the same amount and in the same direction..

65. (New) A method of coupling a signal propagating from a first wave guide configured for a first polarization to a second wave guide configured for a second polarization through a coupler configured for a third polarization comprising the steps of:

(a) rotating the polarization of the signal at junction of the first wave guide and the coupler in a first direction; and

(b) rotating the polarization of the signal at the junction of the coupler and the second wave guide the same amount and in the opposite direction.

66. (New) A method of operably coupling an antenna configured for either of two polarizations to a wave guide configured for either of the same two polarizations comprising the step of coupling the antenna to the wave guide through a coupler configured for a single polarization differing from both of the two polarizations.

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67. (New) The coupler of Claim 66 wherein the difference between the polarization of the wave guide and the coupler is substantially the same as the difference between the polarization of the coupler and the antenna.

68. (New) A waveguide system for propagating a signal wherein said signal enters said waveguide system oriented with a first polarization and exits said waveguide system oriented with a second polarization, said waveguide system comprising:

a first waveguide adapted to be operatively connected to a polarization plate, said first waveguide comprising a first passage for propagating said signal through the first waveguide wherein said first passage is oriented substantially similar to the orientation of the signal when the signal is oriented with said first polarization;

a second waveguide adapted to be operatively connected to the polarization plate, said second waveguide comprising a second passage for propagating said signal through the second waveguide wherein said second passage is oriented substantially similar to the orientation of the signal when the signal is oriented with said second polarization; and

a polarization plate adapted to be operatively connected to said first and second waveguides so as to allow for the propagation of the signal from the first waveguide where the signal is oriented with the first polarization, through said polarization plate, to the second waveguide where the signal is oriented with the second polarization, said polarization plate comprising:

a slot for propagating said signal wherein said slot is substantially similar in shape to said first passage and said second passage and wherein said slot is oriented so as to be rotationally offset, about an axis running longitudinally through the first and second passages and through said slot, from the orientation of the first passage and the orientation of the second passage,

so that said signal enters the waveguide system oriented with said first polarization and exits said waveguide system with said second polarization.

69. (New) The waveguide system of Claim 68 wherein said first polarization is substantially identical to said second polarization.

70. (New) The waveguide system of Claim 68 wherein said first polarization is substantially orthogonal to said second polarization.

71. (New) The waveguide system of Claim 68 wherein the amount of rotational offset of the slot in the polarization plate from the orientation of the first passage is substantially 45°.

72. (New) The waveguide system of Claim 68 wherein the rotational offset between said first path and said slot is the same as the rotational offset between said slot and said second path.

73. (New) The waveguide system of Claim 68 wherein said signal is a radio frequency signal in the range of 2 to 110 GHz.

74. (New) The waveguide system of Claim 68 wherein said signal is a radio frequency signal is in the microwave frequency range.

75. (New) The waveguide system of Claim 68 wherein said first path is associated with a radio communication apparatus and said second path is associated with an antenna.

76. (New) The waveguide system of Claim 75 wherein said antenna is a polarized antenna and the polarization of said polarized antenna is the same as the polarization of said second path.

77. (New) The waveguide system of Claim 68 wherein said first path is associated with an antenna and said second path is associated with a radio communication apparatus.

78. (New) The waveguide system of Claim 77 wherein said antenna is a polarized antenna and the polarization of said polarized antenna matches the polarization of the first path.

79. (New) The waveguide system of Claim 68 wherein said polarization plate includes a first tapered portion to thereby create a first transition region between said first passage and said slot.

80. (New) The waveguide system of Claim 79 wherein said polarization plate further includes a second tapered portion to thereby create a second transition region between said slot and said second passage.

81. (New) The waveguide system of Claim 68 wherein the length of said slot along said longitudinal axis is selected so as to provide in a predetermined manner a desired signal path attribute.

82. (New) The waveguide system of Claim 81 wherein said signal path attribute includes a desired impedance.

83(New). A method conforming the polarization of a signal passing through an input waveguide configured for a first polarization signal to a desired polarization to which an output wave guide is configured, comprising the steps of:

(a) passing a signal from an input wave guide to an output wave guide through a polarization plate;

(b) modifying the polarization of a signal passing through the polarization plate

by a predetermined angle in either a clockwise or counter-clockwise direction to thereby provide a rotated polarization signal; and

(c) modifying the polarization of the rotated polarization signal passing through the polarization plate by the same predetermined angle in the direction required to achieve the desired polarization of the signal in the output wave guide.

84(New). The method as claimed in Claim 83, wherein the desired polarization of the signal is the same in the input and output wave guides and wherein the direction of rotation in step (c) is opposite to the direction of rotation in step (b).

85(New). The method as claimed in Claim 83, wherein the desired polarization of the signal in the output wave guide is orthogonal to the polarization on the signal in the input wave guide; and

wherein the direction of rotation in step (c) is the same as the direction of rotation in step (b).

86(New). The method as claimed in Claim 83, wherein the desired polarization of the signal in the output wave guide is orthogonal to the polarization on the signal in the input wave guide; and

wherein the predetermined angle is 45 degrees.

87(New). In a communications system having a first wave guide feeding an antenna where the waveguide is physically dimensioned for a signal having a selected one of two predetermined orthogonal polarizations and where the antenna is physically

dimensioned for a signal having a selected one of the same two orthogonal polarizations, a method of insuring that the polarization of the signal at the antenna is appropriate for the physical configuration of the antenna comprising the step of passing the signal through a polarization plate which effects two successive forty five degree rotations of the polarization of the signal.

88(New). A method of connecting a waveguide having one of two polarizations to an antenna having one of the same two polarizations comprising the steps of:

(a) rotating the polarization of the signal passing out of the waveguide in either a clockwise or counterclockwise direction by an amount equal one half the difference between the two polarizations; and

(b) rotating the polarization of the signal entering the antenna by an amount equal to one half the difference between the two polarizations.

89(New). A polarization plate for a signal having a wave length λ and one of two orthogonal polarizations comprising a waveguide having a length of approximately $1/4\lambda$, the physical configuration of said waveguide being associated with a polarization midway between said two orthogonal polarizations.

90(New). A waveguide system for a signal having a predetermined wavelength comprising:

a first waveguide physically configured for a signal having one of two orthogonal polarizations;